Notice of DR. MAYR'S *Essay* "Die Europäischen Torymiden": by FRANCIS WALKER, Esq.

The *Torymidæ*, a family of the very extensive tribe of minute *Hymenoptera*, are intimately associated with galls, as they take a prominent part in the events which occur in these habitations, each gall being a little nucleus for the assemblage of living forms. There are three different agencies as to galls; 1st, the gall-bearers, among which the oak has the pre-eminence; 2nd, the gall-makers; 3rd, the gall-borers. Some of the *Cynipidæ* are especially the means of making galls, and are thus the proper possessors of their dwelling-places, but their near relations are introduced into the galls to live at their expense, and to consume their substance and to shorten their lives. But there are other tribes of gall-borers, which have different ways of working; for they have not only the galls, but also the gall-makers or the previous gall-borers, and thereby have a more inward agency and establish another degree of life. Of these borers the *Torymidæ* are the chief controllers of the gall-makers, whose capacity of increase requires many limitary agents. Dr. Mayr has published three essays as materials for the history of galls and their inhabitants; one on Oak-galls; another on the *Synergi*, which associate with the gall-makers; and a third on the *Torymidæ*, and the species which he has included in this family and their means of subsistence which he relates are here enumerated. In the first of his three essays Dr. Mayr describes and figures each kind of Oak-gall and gives the name of its maker. His second essay is divided into two parts. In the first part he gives the priority to the gall-makers, and allots the second place to the *Synergi*; in the second part the *Synergi* are in the first rank and are described, and to each kind is affixed the gall-maker with which it associates itself. The third essay is also divided into two parts, and in the first part Dr. Mayr puts the gall-bearers or plants in the first class, and gives a list of them, excepting the oak, and assigns the second class to the *Torymidæ*; in the second part the *Torymidæ* take the precedence, and the plants are transferred to the second class. *Lochites* and *Syntomaspis* seem to have been needlessly separated from *Callimome*, and may be again combined with it. Of the three species which are included in *Diomorus*, the first and second differ much from the third and may form one genus with *Cryptopristus caliginosus*. The third species, *D. armatus*, is the type of the genus *Diomorus*, which was perhaps unadvisably separated by me from *Callimome*, the dentate hind femora being the only character which distinguishes it. The genus *Podagrion*, as I think, should continue in this family, but Dr. Mayr excludes it. I formerly thought that the comparative length of the oviduct was a good specific character in the genus *Callimome*, but Dr. Mayr has a contrary opinion, and he is most qualified to judge, having been enabled to examine numerous specimens of the family from many kinds of galls. It might be supposed that the length of the oviduct would correspond with the size of the gall in which the *Callimome* seeks to find a maintenance for its offspring, but Dr. Mayr observes that the long oviduct of *Syntomaspis caudata* is inserted both into the oak apple and into the oak spangle. Oak apples are the chief resort of *Callimome*; at the end of June and in the beginning of July thousands of *Andricus terminalis* may be seen coming out of these galls, and they are soon followed by hundreds of *Synergus facialis* and of *Callimome auratus*.

GENUS I. LOCHITES. *Foerst.*

1. *Lochites Papaveris.* Foerst.

Galls of *Aylax Rhocadis* in the same capsules of *Paparer Rhoeas.*

GENUS II. MONODONTOMERUS. *Westw.*

1. *Monodontomerus Strobili,* Mayr.

Cones of *Abies excelsa.*

2. *Monodontomerus obscurus*, Westw.

= pubescens, Walk., = Dresdensis, Ratz., = metallicus, Ratz., = intermedius, Foerst., = ? æneus, Fonscol.
This and *M. nitidus* are perhaps one species; it is *Torymus polychlori*, Kollar's MSS., and may be *Cynips punctata*, Enc. Meth. The species recorded as *M. dentipes* in the British Museum List of this tribe is *M. obscurus*, and the species recorded as *M. obsoletus* is *M. dentipes*.

3. *Monodontomerus nitidus*, Newport.

= Anthiphone, Walk., = vacillans, Foerst., = punctatus, Fonscol.
Pupæ of *Anthophora retusa* and of *Chalicodoma muraria*.

4. *Monodontomerus æreus*, Walk.

= anephelus, Ratz.
Pupæ of *Aporia cratægi*, *Pieris Brassicæ*, *Porthesia chrysorrhea*, *Lasiocampa Pini*, *Tortrix viridana*.
Dr. Mayr mentions the specimens from the last moth as a variety or perhaps a distinct species.

5. *Monodontomerus dentipes*, Boh.

= obsoletus, Ratz., = minor, Ratz., = interruptus, Foerst., = ? cupreus, Nees, = ? obsoletus, Walk.
Pupæ of *Aporia cratægi*, *Pieris Rapæ*, *Lasiocampa Pini*, *Psyche sp.* - ? *Lophyrus similis*, larvæ of *Nematus*.

6. *Monodontomerus obsoletus*, Fabr.

Pupæ of *Aporia cratægi*; *Zygæna Filipendulæ*, *Z. Carniolica*, *Psyche villosella*, *P. viciella*, *P. atra*, *Cimbex lutea*, *Trichiosoma Betuleti*.

GENUS III. DIOMORUS. *Walk.*

1. *Diomorus Kollari*, Foerst.

Crabro rubicola.

2. *Diomorus calcaratus*, Nees.

Stigmus pendulus; reared also from the gall of *Cynips Kollari*, in which it may have been parasitic on a Stigmus, and I have mentioned elsewhere its coming out of the gall of *Cynips argentea.*

3. *Diomorus armatus*, Boh.

= nobilis, Walk.

GENUS IV. SYNTOMASPIS. *Foerst.*

1. *Syntomaspis caudata*, Nees.

= saphirinus, Boh., = affinis, Walk., = litteralis, Walk., = admirabilis, Foerst., = crinicaudis, Foerst = ? affinis, Fonscol.

Andricus terminalis, Neuroterus lenticularis.

C. apicalis may be a variety of this species.

2. *Syntomaspis pubescens*, Foerst.

Galls of *Rhodites Englanteriæ* or of *R. Centifoliæ.*

3. *Syntomaspis fastuosa*, Boh.

= notatus, Walk., = chrysis, Nees., = robustus, Ratz.

Galls of *Trigonaspis megaptera.*

4. *Syntomaspis Cerri*, Mayr.

Galls of *Synophrus politus* and of *Andricus singularis.*

5. *Syntomaspis cyanea*, Boh.

= dubius, Ratz., = eurynotus, Foerst., = ? tarsatus, Nees.

Galls of *Dryophanta longiventris, D. divisa, D. agama, D. disticha, Cynips corticis* and *C. Quercus-inferus.*

6. *Syntomaspis lazulina*, Foerst.

Galls of *Dryophanta folii* and of *D. longiventris*.
Perhaps *Callimome nigritarsis* is a species of *Syntomaspis*.

GENUS V. OLIGOSTHENUS. *Foerst.*

1. *Oligisthenus stigma*, Fab.

= ater, Nees.
Galls of *Rhodites Rosæ*.

2. *Oligosthenus tibialis*, Foerst.

Galls of *Aylax* (*Xestophanes*) *Potentillæ*.

GENUS VI. CRYPTOPRISTUS. *Foerst.*

1. *Cryptopristus caliginosus*, Walk.

= macromerus, Foerst., = intermedius, Foerst., = fulvocinctus, Foerst.

GENUS VII. HOLASPIS. *Mayr.*

1. *Holaspis Kiesenwetteri*, Mayr.

2. *Holaspis Apionis*, Mayr.

Parasitic on *Apion apricans* in tufts of *Trifolium pratense*.

3. *Holaspis Stachidis*, Mayr.

Galls of *Stachys sylvatica*.

4. *Holaspis militaris*, Boh.

Seed-capsules of *Papaver Rhœas*; these capsules inhabited by *Cecidomyia Papaveris*.

5. *Holaspis carinata*, Mayr.

6. *Holaspis Pannonica*, Mayr.

GENUS VIII. CALLIMOME. *Spin.*

1. *Callimome erucarum*, Schrank.

= fulgidus, Boh., = cynipidis, Walk., = rubripes, Ratz.
Galls of *Cynips Cerricola.*

2. *Callimome fulgens,* Fab.

= Rosaces, Walk.
Galls of *Cecidomyia Fagi.*
C. Rosaces seems to me to be a variety of the preceding species.

3. *Callimome chrysocephalus*, Boh.

= rudis, Walk.

4. *Callimome Glechomæ,* Foerst.

Galls of *Aylax Glechomæ.*

5. *Callimome abdominalis,* Boh.

= Cynpidis, Boh., = cingulatus, Nees, = æneus, Nees, = angelicæ, Hab., = medius, Foerst., = cyniphidum, Ratz.
Galls of *Cynips cerricola, C. glutinosa, Dryophanta scutellaris, D. folii, D. longiventris. D. divisa, Andricus terminalis, A. curvator, Neuroterus lanuginosus, Spathegaster baccarum.*

6. *Callimome nobilis,* Boh.

= Roboris, Walk., = regalis, Walk,, = conjunctus, Nees, = subterraneus, Curt.
Galls of *Biozhiza aptera, Aphilothrix radicis, A. Sieboldi.*

7. *Callimome ventralis*, Foerst.

= quadricolor, Walk., = affinis, Foerst.

8. *Callimome incertus*, Foerst.

Galls of *Spathegaster baccarum*, *S. nervosa*, *Bathyaspis Acris*, *Cecidomyia circinans*.

9. *Callimome regius*, Nees.

= nigricornis, Boh., = inconstans, Walk., = lateralis, Walk., = longicaudis, Ratz. = Devoniensis, Parfitt.

Galls of *Cynips cerricola*, *C. argentea*, *C. tinctoria*, *C. Kollari*, *C. glutinosa*, *C. polycera*, *Aphilothrix gemmæ*, *A. globuli*, *Synophrus politus*, *Dryophanta scutellaris*, *D. folii*, *D. longiventris*, *D. divisa*, *Disticha*, *Andricus terminalis*, *A. multiplicatus*, *A. æstivalis*, *Spathegaster baccarum*.

Dr. Mayr observes that this species is sometimes a parasite on the householder, sometimes on the lodger. In the gall of *C. glutinosa* it appears in November of the first year and again in the spring of the second year, and is a parasite of *Synergus facialis*. In the gall of *C. Kollari* it is of large size when it is a parasite of the householder and appears in November of the first year, and of small size when it is a parasite of the lodger and appears in the spring of the second year. The lodgers also vary much in size, and these observations suggest the incompleteness of the knowledge of this species. Is the race thus dwarfed by being associated with the lodgers able to restore its offspring to the ancestral dimensions by committing its eggs to the householders ?

10. *Callimome Lasiopteræ*, Gir.

= Arundinis, Walk.

Parasitic on *Cecidomyia inclusa*, on *Lasioptera Arundinis*, and perhaps on *L. flexuosa* in the stems of *Phragmites communis*. *C. elegans*, *C. Arundinis*, and *C. Druparum* are perhaps one species.

11. *Callimome azureus*, Boh.

= caudatus, Boh., = chalybæus, Ratz.

Parasitic on *Grapholitha strobilana*.

12. *Callimome Eglanteriæ,* Mayr.

= ? caudatus, Ratz.
Ratzburg reared *C. caudatus* from galls of *Andricus terminalis* and *Nematus viminalis,* whereby Dr. Mayr supposes that several species are confounded under the above name.

13. *Callimome quercinus,* Boh.

= tarsalis, Walk., = macrocentrus, Ratz.
Parasitic on *Saperda populnea.*

14. *Callimome Bedeguaris,* Lin.

= pretiosus, Walk., = Foersteri, Ratz.
Parasitic on *Rhodites Rosæ.*

15. *Callimome elegans,* Boh.

= varians, Walk.
Parasitic on *Cecidomyia salicina.*

16. *Callimome druparum,* Boh.

= divisus, Walk.
From seeds of *Sorbus scandica.*

17. *Callimome igniceps,* Mayr.

18. *Callimome pallidicornis,* Boh.

= conturbernalis, Boh., = nitidulus, Walk.
Probably parasitic on *Cecidomyia Betulæ.*

19. *Callimome Artemisiæ,* Mayr.

From galls of *Cecidomyia Artemisiæ.*

20. *Callimome abbreviatus,* Boh.

= euchlorus, Boh., = chloromerus, Walk., = æqualis, Walk., = chlorinus, Foerst.

Parasitic on *Cecidomyia Rosæ.*

Dr. Mayr describes several varieties of this species, and mentions that the oviduct is as long as the abdomen with the thorax or with half of the thorax.

21. *Callimome speciosus*, Boh.

From galls of *Hormomyia Fagi.*

Dr. Mayr mentions in this and in some other species also the variation of the length of the oviduct.

22. *Callimome fuscipes*, Boh.

= chlorocopes, Boh.

23. *Callimome Juniperi*, Lin.

= amethystinus, Boh.
From galls of *Hormomyia Juniperina.*

24. *Callimome sapphirinus*, Fonscol.

From galls of *Lasioptera Eryngii.*

23. *Callimome cyaninus*, Boh.

This species is probably of frequent occurrence in England; it proceeds from galls or knobs on *Cirsium arvense, Carduus acanthoides, C. nutans, Centaurea paniculata, C. montana, C. Jacca, Leontodon incanus*, and *Inula ensifolia.* It is a parasite of *Trypeta Cardui*, of *T. truncata*, and probably of other species of *Trypeta.* I have reared it with *Eurytoma plumata* and *Pteromalus elevatus* from thistle galls made by *T. cardui.*

26. *Callimome hibernans*, Mayr.

From oak-spangles or galls of *Neuroterus lenticularis.* I have reared *Syntomaspis fastuosus* from these spangles.

27. *Callimome Tipulariarum*, Zett.

= pumilus, Ratz.

From galls of *Cecidomyia Salicis.*

28. *Callimome Hieracii,* Mayr.

From galls on *Hieracium* made by *Aylax Hieracii* and probably also by *A. Sabaudi.*

29. *Callimome Lini,* Mayr.

From *Linum usitatissimum.*

30. *Callimome cultriventris,* Ratz.

= Nordlingeri, Ratz.
From the conical galls of *Hormomyia Fagi,* and may be a native of England, as this gall has been lately found there. I have reared one specimen from this gall on the Continent.

31. *Callimome macropterus,* Walk.

= purpurascens, Nees.
From galls of *Rhodites spinosissima,* of *R. rosarum,* of *Diastrophus Rubi* and of *Lasioptera Rubi* on *Rubus cæsius.*

32. *Callimome auratus,* Fonscol.

= viridissimus, Boh., = autumnalis, Walk., = confinis, Walk., = mutabilis, Walk., = leptocerus, Walk., = minutus, Walk., = muscarum, Nees, = propinquus, Foerst, = nanus, Foerst., = appropinquans, Ratz., = gallarum, Ratz. (probably).
From galls of *Andricus terminalis, A. inflator, A. curvator, A. ramuli, A. 4-lineatus, Spathegaster baccarum, Neuroterus lenticularis, C. basalis, curtus, bicolor, latus, inconspectus, micro-stigma* and *leptocerus* may be also varieties of this species.

33. *Callimome amœnus,* Boh.

= formosus, Walk., = scutellaris, Walk., = compressus, Foerst.
From galls of *Aphilothrix radicis* and of *Trigonaspis megaptera.*
C. pretiosus may be a variety of this species.

34. *Callimome Dauci*, Curt.

From galls of *Cecidomyia Pimpinellæ* on *Pimpinella saxifraga* and on *P. magna*; also from galls on *Pastinaca Sativa* and on *Daucus carota.*

35. *Callimome albipes*, Gir.

From galls on a *Limoniastrum.*

36. *Callimome sodalis*, Mayr.

From galls of *Neuroterus lenticularis* and of *N. læviusculus.* Dr. Mayr observes that it is especially distinguished from *C. hibernans* by the shorter oviduct.

37. *Callimome pygmæus*, Mayr.

From the oak-galls of *Cecidomyia subulifex.*

38. *Callimome Corni*, Mayr.

From galls of *Cecidomyia Corni* on *Cornus sanguinea.*

39. *Callimome Galii*, Boh.

= gracilis, Walk.
From galls of *Cecidomyia Galii, Var. Orobi,* from galls of *Orobus Pannonicus.*

40. *Callimome Urticæ*, Perris.

= difficilis, Ratz. (probably).
From galls of *Cecidomyia Urticæ* on *Urtica dioica.*

41. *Callimome viridis*, Foerst.

From galls of *Rhodites Eglanteriæ.*

42. *Callimome purpurascens*, Boh.

= lætus, Walk., = rufipes, Foerst., = congruus, Foerst.

43. *Callimome flavipes,* Walk.

= contractus, Ratz.

From galls of *Trigonaspis megaptera.*

44. *Callimome socius,* Mayr.

With *C. Dauci* from galls of *Cecidomyia* on *Pimpinella saxifraga, P. magna, Pastinaca sativa* and *Daucus carota.*

45. *Callimome spilopterus,* Boh.

46. *Callimome Medicaginis,* Mayr.

A parasite of *Cecidomyia Loti* in leaves of *Medicago falcata.*

47. *Callimome cupratus,* Boh.

48. *Callimome parellinus,* Boh.

= posticus, Walk.
C. chlorinus, C. exilis and *C. terminalis* may be varieties of this species.

49. *Callimome brachyurus,* Boh.

C. abdominalis (Walk.), *C. brevicauda* and *C. nitens* may be one species.

GENUS IX. MEGASTIGMUS. *Dalm.*

1. *Megastigmus Synophri,* Gir.

From galls of *Synophrus politus.*

2. *Megastigmus stigmaticans,* Fabr.

= stigma, Fabr., = giganteus, Kollar.
From galls of *Cynips argentea, C. Kollari, C. glutinosa, C. caput-medusæ, C. calicis* and *Aphilothrix lucida.* It does not occasionally exceed the size of *M. dorsalis,* from which Dr. Mayr distinguishes it by the dark apical abdominal segment of the male, by the black streak on the hind

femora of the same sex, and by the pale ring of the stigma of the forewings.

Dr. Mayr observes that this species is very nearly allied to *M. dorsalis,* and especially to the *var. xanthopygus,* and that it is distinguished by the larger size, by the last dark abdominal segment of the male and by the ring on the stigma of the forewing. Small females are often difficult to distinguish from large females of *M. dorsalis,* and one female appeared from the gall of *Andricus noduli* or from that of *A. testaceipes* with the pale ring on the stigma, which is the character of *M. stigmaticans.* He believes that the large specimens of *M. dorsalis* are parasites of the gall-makers when the latter are larger in comparison with the lodgers (*ex. C. lignicola*), but observes that the question is still undecided when the size of the gall-maker does not differ from that of the lodger.

3. *Megastigmus dorsalis,* Fabr.

= Bohemanni, Ratz., = xanthopygus, Foerst.

From galls of *Dryophanta macroptera, Cynips Kollari, C. caput-medusæ, C. lignicola, C. conglomerata, C. glutinosa, C. coriaria, C. polycera, Aphilothrix lucida, A. gemmæ, Synophrus politus, Andricus noduli, A. inflator, A. terminalis, A. multiplicatus, A. Cydoniæ, A. singularis, A. Grossulariæ* and *Spathegaster glandiformis.*

4. *Megastigmus collaris,* Boh.

= transversus, Walk., = punctum, Foerst., = vexillum, Ratz., = flavus, Foerst.

Parasitic on *Trypeta continua.*

5. *Megastigmus pictus,* Foerst.

= strobilobius, Ratz.

Probably parasitic on *Tortrix strobilana.* I believe that I have found it occasionally in the pine woods near Interlacken, in Switzerland.

6. *Megastigmus bipunctatus,* Boh.

= ? erythrothorax, Nees, = ? brevicaudis, Ratz.

Parasitic on *Tinea Epilobiella* and on *Hypsolophus marginellus.*